



INTERNATIONAL
TRADE
ADMINISTRATION

2015 Top Markets Report **Automotive Parts**

A Market Assessment Tool for U.S. Exporters

July 2015



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Executive Summary and Key Findings

The automotive industry is the largest manufacturing sector in the United States. It is truly a global industry with automakers from the United States, Europe, Japan and Korea producing cars and automotive parts for consumers around the world. With so much activity taking place, and growth in the sector expected to accelerate globally, this *Top Markets Report* provides U.S. auto parts suppliers the honest assessment of opportunities and challenges needed to successfully export to various markets throughout the world. Separate models were developed for original equipment (OE) parts and for aftermarket parts export markets through 2020. Rankings are provided for a total of 30 markets, with detailed country case studies written about eight different markets.

The automotive parts industry has nearly doubled in the last five years. Today, there are large domestic automakers in countries around the world, including China, India and Russia -- not to mention, legacy manufacturers in the United States, Europe, and Japan. Each manufacturer produces their own parts, such as engines, transmissions, frames, and body parts. But, increasingly, many large manufacturers are turning to first tier suppliers for the design and production of most components, and even large subassemblies. In fact, large first-tier suppliers are now as global as the vehicle manufactures.

The first-tier suppliers get subcomponents from second and third-tier suppliers and this chain continues down to raw material suppliers. The goal of automakers is to produce in the market/region where the vehicle will be sold, and to shorten supply chains to the extent that it is economically feasible. Mass-produced vehicles are generally only exported to countries where the economies of scale do not support local assembly. The major exception is limited-production luxury, sports, or other special use vehicles.

Similarly, the goal is to produce OE parts as close to the assembly plants as possible. Modern auto plants are built for just-in-time delivery of components, making long overseas supply chains costlier and riskier. Exceptions tend to be high tech, high cost, and light-weight components, such as computer modules.

Another example is exports of light weight alloy wheels are more likely than exports of heavy and inexpensive basic steel wheels. The situation is similar for aftermarket parts, but not always to the same degree. An aftermarket replacement part such as a shock absorber or brake assembly could be the exact same part, built by the same OE supplier. But this would be

less true for expensive and/or high tech specialty components used at the discretion of the purchaser to enhance the appearance or performance of a vehicle.

As a result of these factors, you do see the massive intra-regional trade between the United States, Canada, and Mexico in both OE and aftermarket parts, while imports are smaller in countries such as Japan and Korea. On the other hand, you find relatively large sales of aftermarket, including specialty aftermarket parts in smaller countries such as the UAE and Saudi Arabia, which do not support local production.

While the global automotive industry is fiercely competitive, there are other factors that limit or even distort trade. For decades various governments around the world have used trade distorting policies to support the creation/expansion of domestic automotive industries that were not otherwise economically feasible. This has been accomplished through combinations of subsidies, tariffs, and non-tariff barriers.

A prime example is India, which has a large and rapidly growing automotive industry made up of indigenous manufacturers and foreign companies forced to produce there by prohibitive tariffs. Brazil has a large industry made up of foreign manufacturers facing high localization requirements. The Malaysian national automobile industry makes noncompetitive vehicles, but is highly subsidized and protected by barriers.

Another particularly important and rapidly growing impediment for U.S. exporters is the development or acceptance of safety and environmental standards/regulations that differ from the United States. This is a major problem whether these

differences were created as a purposeful barrier to trade, or not.

The bottom line is that exporting auto parts from the United States to various markets can be challenging, even for the most competitive suppliers. This *Top Markets Report* examines issues related to U.S. automotive parts exports and includes eight country-specific case studies for Germany, Thailand, Colombia, Brazil, Mexico, Korea, China, and Saudi Arabia.

Understanding the Industry

The automotive parts manufacturing industry is comprised primarily of two segments: original equipment (OE) suppliers and aftermarket suppliers. OE suppliers design and manufacture parts required for the assembly of passenger cars and trucks. OE production accounts for an estimated two-thirds to three-fourths of the total automotive parts production. Thus, automotive parts consumption is heavily linked to the demand for new vehicles. If vehicle production goes up/down in a given market, then demand for OE parts will correspondingly go up/down, as well. Conversely, if a market has little, or no, domestic vehicle production, demand for OE parts will be limited or nonexistent.

Aftermarket parts are automotive parts built or remanufactured to replace OE parts as they become worn or damaged. Automotive aftermarket buyers include: retailers, repair/service facilities, do-it-yourself consumers, and wholesaler/distributors. This segment provides parts and equipment for maintenance, repair and enhancement of vehicles. Related to this is specialty equipment, which are the parts and tools for consumer preference vehicle modifications. Specialty equipment refers to parts made for comfort, convenience, performance, safety, or customization, and are designed for add-on after the original assembly of the motor vehicle.

Automotive parts include, but are not limited to:

- Bodies and parts
- windshields
- chassis and drivetrain parts
- electrical and electric components (fans, compressors, storage batteries, signaling equipment, etc.)
- engines and parts

- miscellaneous parts (brake fluid, anti-freeze, lifting machinery, etc.)
- automotive tires and parts

See Attachment 1 for the ten digit Schedule B codes of the automotive parts covered in this report.

Why a focus on automotive parts?

Vehicle manufacturers are large companies that historically like to build where they sell. Companies, including Volkswagen, Ford, GM, Honda, Hyundai, etc., typically have established manufacturing facilities throughout the world. Given these manufacturers' large, international operations with marketing and manufacturing operations, they have already tapped into most of the markets, both large and small. These companies also already have established business connections with their Tier 1 suppliers, and rely heavily on just-in-time delivery from these suppliers in order to maintain optimal productivity through the manufacturing process. In addition, vehicle manufacturers have very sophisticated plans in place when making sourcing and investment decisions.

Automakers deliver vehicles either through established assembly plants in the markets or through complex export operations delivering to smaller markets. For example, BMW manufactures products at 30 sites in 14 countries on four continents. Likewise, BMW uses its Spartanburg, South Carolina plant as a base for exports since the mid-1990s and is the sole location for exclusive production of its X-3, X-5, and X-6 models. In 2013, almost 300,000 vehicles were manufactured at this facility with 70 percent of the plant's production volume exported to 140 markets around the world. Similarly, the 2015 Mustang, assembled in Flat Rock, Michigan, will be available in more than 100 markets.

Some suppliers are similar to the vehicle producers in that they are large, complex operations with investments throughout the world. For example, Magna has over 130,000 employees with 312 manufacturing operations and 83 product development, engineering and sales centers in 29 countries. Denso has approximately 140,000 employees and operates in 35 countries, with global sales totaling \$39.8 billion for the fiscal year that ended March 31, 2014. In contrast, many Tier 2 (and lower tiers) manufacturers of automotive parts are small and medium-size enterprises (SMEs).

Most U.S. SME auto suppliers do not export. Those that do export do so primarily to Canada and/or Mexico. This demonstrates untapped potential to introduce U.S. suppliers to foreign markets, particularly for the aftermarket. These SMEs do not have the marketing departments, international operations, and vast resources to readily expand their operations to new markets throughout the world in the same capacity as the vehicle manufacturers and many of the Tier 1 suppliers.

This *Top Markets Report* aims to identify the best markets going forward for these companies to focus their efforts in identifying export opportunities. By focusing on automotive parts, this study provides helpful market information to assist these companies in identifying promising markets to expand their business, grow exports, and remain competitive on a global scale.

Export Markets

In 2009, the United States exported approximately \$43 billion worth of automotive parts. The top five markets in order were: Canada, Mexico, Germany, China, and Japan. By 2014, the value of automotive parts exports from the United States had risen to almost \$81 billion. The top five markets by 2014 had changed to: Canada, Mexico, China, Germany, and Australia. See Attachment 2 for a full list of the top 30 export markets for U.S. automotive parts between 2009 and 2014. Trade data related to auto parts does not distinguish between OE and aftermarket parts, which is a limitation for this analysis.

Of the nearly \$81 billion of U.S. automotive exports in 2014, Canada accounted for about \$30 billion of these exports, with Mexico accounting for almost another \$29 billion. Combined, these two NAFTA partners accounted for almost 75 percent of all U.S. automotive parts exports. Exports to both of these markets grew substantially over the same time period, with exports to Mexico more than doubling from \$12.1 billion in 2009 to over \$29.1 billion by 2014. As a result of NAFTA, the U.S. auto parts industry is highly integrated in the North American supply chain, contributing to the flow of goods among the three markets. The third leading market for U.S. exports in 2014, China, has steadily been growing as a market for U.S. exports over the last five years. U.S. automotive exports to Australia

more than doubled over five years from \$687 million in 2009 to almost \$1.5 billion in 2014.

For the European market, Germany is the top destination for U.S. automotive parts exports, followed by the United Kingdom, the Netherlands, Italy, Belgium, and France. Brazil is the top destination for U.S. parts exports in South America with exports nearly doubling from \$554 million in 2009 to \$1.1 billion in 2014. The next largest markets in this region for U.S. parts are Chile, Venezuela, Colombia, Argentina, and Peru.

Challenges facing U.S. automotive parts exporters

One of the greatest challenges facing U.S. auto parts exporters is the global regulatory environment. Lack of harmonization/coherence and transparency of regulations and standards, deeply affect the competitiveness of U.S. vehicle and automotive parts manufacturers worldwide. Conforming to two different standards is costly and time-consuming. Until recently, most developing countries have had only limited regulatory requirements and thus they accepted virtually any vehicles built to minimal safety and emissions levels. This has made it possible for American companies to export U.S.-compliant vehicles and products for sale to these markets.

Unfortunately, many countries are now choosing to either accept or base their regulatory standards on those developed by the European Union. Because of this, they are no longer allowing the sale of U.S.-compliant products in their markets. It is an irony that many of the countries that are adopting EU standards have systems more similar to the U.S. system (e.g., Chile, Colombia, Russia, etc.).

They have been doing this largely because the EU has been aggressive in marketing its regulatory system and appear to be including requirements for adopting its standards in its trade agreements. However, now there is a possible threat to the EU system as well. In addition to the barriers cropping up from the mandatory use of EU standards, there are recent hints that emerging markets like China or India are developing their own standards. Having a third, fourth, or potentially more set of standards will make it even harder to export to other markets, and certainly raise the cost of doing business. This is one of the many reasons why it is in the interest of the European and

U.S. policy makers to push for standards coherence in the ongoing Transatlantic Trade and Investment Partnership (TTIP) negotiations.

Another barrier to trade for auto parts manufacturers (especially small to medium-sized companies) is the push by foreign governments for localization. In an effort to increase investment in their local economy, some countries encourage localization and offer incentives to build a manufacturing facility and/or partner with a local firm. China, for example, pressures companies to produce in country and partner with local vehicle manufacturers and suppliers in order to build up its indigenous industry.

Many markets with a fairly large domestic industry impose high tariffs and excise taxes in order to drive up the costs of imports. In Thailand, ad valorem tariffs can be as high as 80 percent for imports that compete with domestically produced automobiles and parts. Excise taxes on automobiles are usually based on various vehicle characteristics such as engine size, weight and wheelbase, which make the tax calculation complex.

Exporting automotive parts to the European Union can amount to tariffs of 2-5 percent of total costs and, for already assembled parts, tariffs may even account for 15-20 percent of overall costs. Where there are low margins, tariff costs can result in missed business opportunities overseas.

In addition, some government policies attempt to close the market for outside competitors by forcing consumers to work within an established network of local companies. These policies regulate and restrict foreign companies from competing by creating restrictions on investment and distribution, and by regulating purchasing decisions by consumers. U.S. automotive manufacturers have complained about Japan's closed market for decades, and in 1995, the U.S. Government signed a major automotive trade agreement with the Japanese Government. However, the Japanese market is still a major challenge for U.S. vehicle and parts manufacturers to enter. One of the chief obstacles in concluding the Trans-Pacific Partnership (TPP) is the deadlock between the United States and Japan over remaining automotive issues. In Korea, the signing of the U.S.-Korea Free Trade Agreement has created a more balanced playing field for U.S. exporters.

A final factor that can make exporting difficult is the ever-increasing competitiveness of the automotive industry worldwide. There are more and more parts suppliers entering the market offering lower price points, quality products, and/or advanced technologies. In addition, some of these suppliers receive or have received subsidies provided by their local governments.

U.S. manufacturers with aftermarket products that are easy to produce and fairly low tech will face the greatest challenges. The U.S. Department of Commerce can provide counseling to determine the export potential for U.S. auto parts suppliers' products. In addition, U.S. suppliers will benefit from Commerce's market intelligence and business matchmaking services. If problems arise, commercial advocacy and diplomacy assistance can also be offered.

Furthermore, the conclusion of a number of our trade agreements will hopefully create better opportunities for U.S. parts suppliers, and lower the cost of doing business. These trade agreements aim to increase harmonization, lower tariffs, reduce barriers, and address issues such as counterfeiting and intellectual property protection.

Methodology

The methodology for our two models was to identify variables that measured the overall demand for these particular parts, the degree to which this demand would be met by imports, and the likelihood that imports would originate from the United States. Many different data points were tested, in various combinations, until a logical set of variables emerged. Weights were then assigned based on our assessment of relative importance.

In some cases, we were not able to include a factor of interest due to lack of data or we had to use a proxy variable to try and capture the factor. For example, the average vehicle age for a market is a likely indicator for the need of aftermarket parts. The older the vehicles tend to be in a given market, the greater the likelihood that repairs will be needed and therefore more replacement parts. However, we were unable to identify a single reliable source for the vehicle age in each of the markets analyzed in our study. Therefore,

Figure 1: Near-Term Autoparts Export Market Rankings (2015-2020)

Original Equipment			Aftermarket		
Country	Rank	Score	Country	Rank	Score
Canada	1	0.741	Canada	1	0.748
Mexico	2	0.619	Mexico	2	0.571
China	3	0.485	China	3	0.297
Germany	4	0.413	Singapore ¹	4	0.247
Belgium	5	0.403	Chile	5	0.234
Japan	6	0.402	Peru	6	0.230
Netherlands	7	0.395	Belgium	7	0.229
Chile	8	0.380	Australia	8	0.214
United Kingdom	9	0.378	Netherlands	9	0.211
Sweden	10	0.375	Germany	10	0.211
France	11	0.359	UAE	11	0.207
Korea	12	0.356	United Kingdom	12	0.197
Colombia	13	0.343	Saudi Arabia	13	0.193
Spain	14	0.341	Sweden	14	0.190
Poland	15	0.339	Japan	15	0.187
Italy	16	0.337	Colombia	16	0.184
Venezuela	17	0.325	France	17	0.170
Turkey	18	0.319	Korea	18	0.168
South Africa	19	0.307	Venezuela	19	0.163
Russia	20	0.301	Italy	20	0.147
Thailand	21	0.295	Poland	21	0.138
India	22	0.291	Spain	22	0.137
Brazil	23	0.289	Thailand	23	0.137
Argentina	24	0.265	South Africa	24	0.136
Hong Kong	25	0.232	Turkey	25	0.135
Singapore	26	0.227	India	26	0.121
Australia	27	0.174	Brazil	27	0.115
Peru	28	0.169	Russia	28	0.113
UAE	29	0.168	Nigeria	29	0.087
Saudi Arabia	30	0.140	Argentina	30	0.085

we developed a proxy variable by creating a measure using sales as a share of vehicles in operation.

For OE, we identified seven factors, and for aftermarket we identified six factors. The seven variables used for the OE model are: Vehicle sales in a market; Value of U.S. parts exports to a market; U.S. import share in the market; Projected vehicle production in a market in 2019 by volume; Distance of the market from the United States; past vehicle production in the market; and the market's openness to trade.

The six variables used in the aftermarket model were: Projected vehicle sales in the market by 2019; U.S. parts exports to the market by value; U.S. import share in the market; vehicle age proxy ; distance of the

market from the United States; and the openness of the market to trade [further details in Attachment 3].

Results

As can be seen in the table above, there are some similarities in the results for both the OE and aftermarket analyses, yet distinctions emerge in both the rankings and the relative values for many countries. For both the OE and aftermarket rankings, the top three are Canada, Mexico, and China.

However, the three markets maintain these high scores for varying reasons in each analysis. In regards to OE, China had the highest average vehicle production between 2011-2013 (19.9 million vehicles) that easily eclipsed even the second largest vehicle producer in this analysis during the same time period

(Japan 9.3 million vehicles produced on average). China is also projected to produce over 32 million vehicles by 2019. In addition, it is the third largest market for U.S. automotive parts. Combined, given the weight assigned to these factors in this analysis, China is a strong prospect market for U.S.-made OE auto parts in the future with a total score competitive with Mexico in the coming years. For the aftermarket, again due largely to the sheer size of the market in China and the recent growth of U.S. auto exports there, China is a market with large potential.

Canada and Mexico, however, are the top two prospective markets for a different set of reasons. Although they do not produce nearly as many vehicles as China (although Mexico's production is expected to grow rapidly from an average of 2.9 million between 2009-2011 to over 4.5 million by 2019), they have historically been the largest market for the export of U.S. automotive parts, accounting for over 75 percent of U.S. exports in 2013. In addition, given the integration of the auto industry among Canada, Mexico, and the United States, and the close proximity in terms of distance and sharing a border, these markets will continue to be strong prospect markets for U.S. auto parts exporters going forward.

Looking further at the results from the OE model, Germany, Belgium and Japan round out the top six potential markets behind Canada, Mexico, and China. Japan's average production between 2011 and 2013 was 9.3 million vehicles. Over the last three years, Japan has been the sixth largest market for U.S. parts exports, with an average of \$1.4 billion in exports during that time. While it is a niche market in terms of size compared to our NAFTA partners, Japan should continue being a top market for U.S. exporters to pursue given its volume of production. A successful conclusion of TPP negotiations will improve Japan's openness to trade, and improve U.S. auto part exporters' prospects. Germany shares a number of these same characteristics: its average vehicle production between 2011 and 2013 was almost 6 million units, it was the fourth largest export

destination for U.S. parts with an average of almost \$1.7 billion in exports between 2011 and 2013, and it also scores highly on the openness to trade scale.

Other markets had dramatically different rankings in the two different models. This is not surprising given the different factors considered in the models, especially for a country with a modest sized market for vehicles, but without domestic vehicle production. For example, UAE was near the bottom in the OE model rankings, which is to be expected due to its lack of vehicle production. UAE does rank much higher in the aftermarket coming in at number eleven.

Similarly, Australia ranks highly at number eight for aftermarket, but is near the bottom for OE equipment. This can be explained by the fact that Australia has a large market for vehicles and is projected to continue having sales of vehicles exceeding one million units in 2019, but vehicle production will cease within the next few years and therefore eliminate the demand for OE equipment.

There are a myriad of other factors that account for the potential of a market. Poor roads in Mexico put strain on a vehicle fleet that is relatively old, thus requiring more maintenance and aftermarket repairs. In addition, the similarity of vehicle fleets in the United States and Mexico provide an obvious market for U.S. parts exporters. Similarly, the combination of older vehicles and lower wages in Colombia creates high demand for aftermarket repair parts as vehicle repair is more economical than vehicle replacement.

China has an interest in green technologies and is a rapidly expanding green automotive industry, which is a strength of U.S. companies and may allow an opportunity for U.S. auto parts exporters to capitalize. Likewise, there is high demand for specialty performance and appearance products for vehicle modification in Saudi Arabia given its high levels of disposable income. In addition, larger vehicles are popular in this market, which is a segment dominated by U.S. vehicle manufacturers.

Country Case Studies

The following pages include country case studies that summarize export opportunities in selected markets. The markets represent a range of countries to illustrate a variety of points – and not the top five markets overall.

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Mexico

Type: Large Market; Large Share

Mexico ranks number 2 as the largest export market for U.S. auto parts overall. The size of its market and the shared border provides an excellent market for U.S. OE and aftermarket parts. Auto sales have shown consistent growth since 2010, from 820,406 units in 2010 to 1,063,363 units in 2013 according to the Mexican Association of Automotive Industry (AMIA). In addition, U.S. exports of new passenger vehicles have grown from 129,128 units in 2010 to 153,742 units in 2013.

Original
Equipment
Rank

2

Aftermarket
Rank

2

Mexico is ranked the seventh largest vehicle producer in the world and first in Latin America. According to the Mexican Association of the Automotive Industry, by 2020, Mexico may surpass Korea, becoming the sixth largest worldwide vehicle producer. The auto sector accounts for 20.3 percent of Mexico's manufacturing sector and 3.6 percent of national GDP. Furthermore, Mexico's auto parts industry is closely tied to its American counterpart and economic growth in the U.S. Low labor costs and extensive free trade agreements have provided incentives for vehicle manufacturers to establish plants in Mexico to export to the world, contributing to its production growth.

Overview of the Automotive Parts Market in Mexico

Since 2009, U.S. auto parts exports to Mexico have more than doubled from \$12.1 billion to over \$26.5 billion in 2013 and over \$29 billion in 2014. Exports to Canada, the

largest market for U.S.-made parts, have also consistently grown, albeit more modestly, from \$19.6 billion in 2009 to \$28.4 billion in 2011 and \$30.4 billion in 2014. Combined, our North American Free Trade Agreement (NAFTA) partners account for over 75 percent of all U.S. parts exports.

Trade between the United States, Canada, and Mexico is bound by the terms of NAFTA. As a result, there are no duties on Canadian and Mexican imports of automotive parts that meet the NAFTA rule of origin. According to the National Auto Parts Industry (INA), Mexico is the 5th largest auto part producer. Production has grown from \$41.2 billion in 2009 to over \$76.8 billion in 2013 with production expected to exceed \$81 billion in 2014. The growth of vehicle production will further lead to increased demand in the auto parts industry, with demand for a wide range of products for assembly companies' production lines while continued increases in the number of vehicles sold will increase the demand for aftermarket parts.

Figure 1: 2013 Mexico Automotive Market

Sales (units)	1,061,728
U.S. Auto Parts Exports (2014)	\$29,136,941,959
Total Auto Parts Imports	\$42,337,536,962
Total Domestic Vehicle Production	3,054,849
Vehicles in Operation (2012)	22,961,571
U.S. Auto Parts Export Growth 2009-2014	+141%

Challenges and Barriers to Automotive Parts Exports

Mexico's pursuit of free trade agreements with dozens of countries across North and South America, Europe, and Asia has made it an increasingly competitive market for manufacturing. These "FTAs combined with low labor rates and close proximity to the United States open the door for U.S. aftermarket companies to set up cost effective production facilities within Mexico and then to export finished products to the United States, Latin America and worldwide markets." For example, according to KPMG, Mexico offers 13 percent savings in auto parts manufacturing costs

compared to costs in the United States. Tier 1 and tier 2 suppliers that already supply OEMs that are opening or expanding in Mexico will likely be enticed to follow these customers with new investments of their own in order to secure these new and substantial supply contracts.

Mexico is the 5th largest auto part producer, so the market is already competitive. There are 198 auto part plants in the northeast region of Mexico, 70 plants in the northwest region, 142 plants in the west, and 101 plants in the central region. In total, Mexico has around 2,559 auto parts companies, with 70 percent being foreign owned companies. 26 percent of the foreign owned auto parts companies already established in Mexico are from the United States, with Japan accounting for 31 percent, followed by Germany at 23 percent. Examples of the suppliers already operating in Mexico include, Bosch, Magna, Hitachi Automotive Systems, Delphi, Michelin, Denso, and TWO Automotive, among many others.

The United States is the leading exporter of parts to Mexico, followed by China, Japan, and Germany. While the United States exported over \$26 billion in auto parts to Mexico in 2013, it imported almost \$42 billion in parts from Mexico. This is more than double (\$16.3 billion) the imports from the second largest source of U.S. imports, Canada.

Opportunities for U.S. Companies

Original Equipment (OE)

There are currently ten passenger vehicle manufacturers in Mexico, including General Motors, Chrysler, Ford, Nissan, Fiat, Renault, Honda, Toyota, VW, and Mazda. This manufacturing base produces 42 brands and 500 models in 21 manufacturing plants and has a network of 1,700 dealers. In the next two years, BMW and Audi will also open plants in the country. Recently, Nissan and Daimler signed a joint venture agreement for Nissan to produce Mercedes Benz and Infiniti vehicles in Mexico. The Korean automaker Hyundai recently announced its plans to build a plant in Mexico. Kia is also planning to open a \$1 billion auto

plant that is expected to be completed in 2016 and will have capacity to build 300,000 vehicles annually.

Daimler AG and Renault-Nissan have also announced plans to spend \$1.4 billion to build a new factory that will produce 300,000 compact Infiniti and Mercedes vehicles a year by 2017. In 2014, Mazda opened a new small-car assembly plant in Mexico that is expected to eventually have an annual capacity of 230,000 vehicles. BMW is investing \$1 billion constructing a new factory with a capacity of 15,000 units/year that is scheduled to be on stream by 2019. Toyota plans to increase production capacity by 41 percent in 2015 at its Tacoma plant in Mexico and build a second plant for vehicle production in the near future. For U.S. auto parts makers that already supply to these automakers' operations in the United States, these new investments in Mexico could provide export opportunities going forward.

Aftermarket

Mexico has a large number of older cars, providing opportunities for repair and aftermarket parts and accessories. 57 percent of total vehicles are 10 years old or older. The average Mexican consumer owns a 17-year-old vehicle. The combination of the age of the vehicles with poor road conditions that put excessive strain on vehicles provides a prime market for aftermarket parts. In the aftermarket, there are business opportunities for gasoline and diesel engines, transmissions and parts, collision and repair parts, electric parts, maintenance and repairing equipment.

The Mexican car fleet is fairly similar to the U.S. car fleet, thereby making aftermarket parts from the United States an attractive option. Popular models include the Chevrolet Aveo, Nissan Versa, and the Volkswagen Jetta. Nissan has almost a 25 percent market share, followed by GM, Volkswagen, Ford and Chrysler in the top five. Combined, the geographic proximity, similar fleets, and large number of vehicles reaching prime aftermarket age should provide plenty of opportunities for U.S. companies to export aftermarket parts to Mexico.

China

Type: Large Market; Small Share

China is the world's largest market for automobiles and the world's top auto producer. China plans to grow its production of new energy autos and parts by 35 percent annually, dedicating more than \$18 billion in government support to the sector through 2020. If achieved, China will very likely become the world's leading producer of electric and hybrid vehicles and their key components by 2030.

Original
Equipment
Rank

3

Aftermarket
Rank

3

The Government of China has viewed its automotive sector, including the auto parts industry, as a pillar industry for many years. The sector is projected to grow rapidly under the government's latest economic development plans, which devote particular attention to the latest automotive technologies employed in electric and hybrid vehicles.

Overview of the Automotive Parts Market in China

China is the third largest market for U.S. auto parts exports. In 2014, there were \$2.5 billion in exports with an increase of 13 percent from the previous year. China exported \$16 billion in auto parts to the United States in 2013, an increase of 9 percent.

IHS Automotive estimates that light-vehicle sales in China will increase seven percent in 2015 to reach 25.2 million vehicles. SUV's are a fast-growing segment and they are expected to comprise 28 percent of the market. China's growth in new passenger vehicle sales and the aging of China's vehicles will inevitably create an increased demand for both original equipment (OE) parts and aftermarket parts.

New auto-related regulations and policies in China continue to be developed as the market grows. In late 2014, there were some new announcements related to the distribution of aftermarket parts, requirements for automakers sharing technical information with independent repair shops, and establishing minimum service requirements for independent repair shops. This may allow non-original equipment manufacturers to sell to dealers and end users.

Challenges and Barriers to U.S. Automotive Parts Exports to China

U.S. automakers and automotive parts manufacturers face significant challenges in China's automotive market as China has implemented a series of policies that have had a discriminatory effect on foreign enterprises including caps on majority foreign ownership. Additional problems arose after China's economic policymakers began devoting substantial resources, and creating new policies to assist Chinese automobile enterprises in developing cutting-edge New Energy Vehicle (NEV) technologies and building domestic brands that could succeed in global markets.

Chinese policy makers have recently hinted that they may be developing their own standards. Having a third, fourth, or potentially more set of standards will make it even harder to export to Chinese markets, and certainly raise the cost of doing business.

Figure 1: 2013 China Automotive Market

Sales (units)	21,984,079
U.S. Auto Parts Exports to China	\$2,587,345,630
Total Chinese Auto Parts Imports	\$40,936,539,654
Total Domestic Vehicle Production	22,116,825
Vehicles in Operation (2012)	52,165,000
U.S. Auto Parts Export Growth 2009-2014	+175%

Chinese auto and auto parts producers benefit from many Chinese government policies, including import restraints, domestic content rules, technology transfer policies, export requirements, and domestic and export subsidies. Auto parts targeted by these plans include batteries, electric motors, electronic control systems, and fuel cells.

China remains a major source of counterfeit auto parts, and it is a concern for the industry worldwide. U.S. companies, whether exporting or not, should be diligent about protecting their intellectual property in China and be on the lookout for any counterfeit products for sale not only in China, but worldwide.

China has been slow to update the laws and regulations regarding vehicle modifications, which limits U.S. parts exports of specialty products. In addition, there is concern there will be a certification requirements for aftermarket parts sold in China, which would be burdensome for parts suppliers.

Opportunities for U.S. Companies

While it can be difficult for U.S.-made parts to compete with low-cost Chinese parts, there are opportunities for exports. Many Chinese consumers appreciate the quality and reliability of U.S.-made parts, and they have the means to pay more for them. In addition, those parts with advanced technologies or unique features have the potential to be exported.

Original Equipment (OE)

With Chinese vehicle production expected to increase at an average seven percent annually to reach approximately 31 million units by 2018 it is projected that auto and auto component makers will increase localization in their manufacturing operations.

China requires all foreign vehicle brands that manufacture in China to have a joint venture with a Chinese partner. Currently, over 20 foreign automakers produce vehicles in China, including: GM, Ford, Fiat/Chrysler, Daimler, BMW, Volkswagen, Audi, Peugeot/Citroen, Jaguar/Land Rover, Volvo, Toyota, Honda, Nissan, Infinity, Isuzu, Mazda, Mitsubishi, Suzuki, Hyundai and Proton.

Ford has stakes in two JVs in China, Jiangling Motors Corp., and Changan Ford Automobile. Ford Motor is planning to increase its China production to 1.5 million

units by 2015. It is also planning to raise production of vehicles built in the United States and Canada that are exported to China by about 40,000 units. For the first 9 months of 2014, Ford sold 813,412 vehicles in China, up 26 percent from the same period last year.

GM has 10 joint ventures in China. GM, along with its joint ventures, sell vehicles and brands among sold under the Buick, Cadillac, Chevrolet, Opel, Baojun, Wuling and Jiefang nameplates. The GM China plan includes \$14 billion in new investments, opening 5 more auto assembly plants by 2018 with a goal of building 5 million units per year in China, up from its current 3.5 million units.

Fiat Chrysler recently established a JV with Guangzhou Automobile Industry Group Co. Fiat Chrysler forecasts that its sales in China would increase to 850,000 vehicles in 2018 from 130,000 in 2014. By 2018, GAC Fiat will be producing six models in China.

OE parts suppliers already in the global supply chain for these vehicle manufacturers could have some advantage in supplying these plants in China, but in most cases the parts will be produced there. For example, Delphi, a major US parts manufacturer currently has 28 manufacturing plants in China with plans to increase this further.

Aftermarket

Beginning on January 1, 2015, automakers are required to provide maintenance and technical information for all models with independent repair shops. In addition, original equipment suppliers will be allowed to sell their products directly to consumers and non-authorized dealers. These changes will encourage greater competition and will allow component manufacturers more access to aftermarket sales.

Currently, China's after-sales market is still in its development stage, with immense opportunities for growth. The average age of the country's vehicle fleet is three years old, and after-sales services haven't become a major issue for cars, which are still under warranty. By 2017, the average age of China's fleet is projected to rise to 5 years, and after-sales services will become increasingly important. Despite its underdevelopment, the Chinese aftermarket sales generated \$73 billion in 2013, compared to the US aftermarket sales of \$131 billion in 2012.

A growing after-sales market and a strong potential for clean energy vehicles will encourage U.S. exports followed by investment from suppliers. U.S. aftermarket companies can meet potential buyers at Automechanika Shanghai.

Specialty

Currently China has regulations which prohibit many vehicle modifications, constraining U.S. specialty auto equipment exports. ITA has helped to inform Chinese industry and government representatives about how the United States safely regulates the U.S. aftermarket, including specialty equipment.

The Specialty Equipment Market Association (SEMA) has a Market Development Cooperator Program (MDCP) award with ITA to help U.S. specialty parts companies increase their exports to China. Each fall, SEMA organizes an event in China where U.S. specialty parts companies can explore the market and meet potential buyers.

Subsector Best Prospects

As the Chinese Government works to reduce pollution and the importation of oil, it has been making regulatory changes that target increasing fuel efficiency. These changes will create opportunities for advanced technology components such as turbochargers which decrease fuel consumption.

U.S. companies that specialize in vehicle emissions controls are in a great position to take advantage of the Chinese market as they have more advanced technology than Chinese suppliers.

Next January, China is scheduled to adopt stricter diesel emission regulations (Euro 4) and China is currently drafting stricter passenger vehicle fuel consumption regulations.

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Germany

Type: Large Market; Large Share

Germany ranks number 4 on ITA's list of top U.S. auto parts export markets. After several years of declining auto sales, Western Europe has slowly begun to show signs of economic recovery.

Original
Equipment
Rank

4

Aftermarket
Rank

10

The Transatlantic Trade and Investment Partnership (T-TIP) is expected to breathe new life into vehicles sales and production, with the hopeful elimination of tariffs and a significant reduction in the cost differences created by divergent regulations and standards, including costs for additional research and development, production of EU-specific lines, as well as testing and certification costs. In addition, both the United States and the Europeans are moving ahead with collaborative research and development of advanced technologies, which will improve the market for fuel efficient vehicles and advanced automotive parts.

Overview of the Automotive Parts Market in Germany

Despite a slow economic recovery, Germany continues to outperform other European markets. Volkswagen, in particular, exceeded the region's generally flat sales. Suppliers have not been as impacted by the slowdown because they are often less reliant on the growth of a single company, and generally enjoy a more global sales base.

In fact, with nearly one dozen German automotive plants scattered throughout the country, Germany hosts the largest concentration of OEM plants in Europe (over 47 OEM sites). The largest autos market in the European Union, German vehicle and parts manufacturers directly employ more than 800,000 people (with a further three million employed indirectly).

Challenges and Barriers to Automotive Parts Exports

The greatest challenge facing U.S. auto parts exporters, as well as domestic parts manufacturers in Germany, comes from a general weakness in the economy throughout Western Europe and a drop in consumer spending. As the world's largest exporter, specializing in high-end manufactured goods and capital products, Germany has been particularly hit hard by the slowdown in both the G7 and emerging markets.

The barriers to trade that exist in Germany are similar to the barriers that suppliers face throughout Europe and the rest of the world. Lack of harmonization/coherence and transparency of regulations and standards, and disparity in tariffs are the major barriers for doing business in Germany. These barriers, while not insurmountable, raise the cost of doing business for U.S. automotive vehicle and parts suppliers.

Figure 1: 2013 Germany Automotive Market

Sales (units)	3,257,718
U.S. Auto Parts Exports to Germany	\$1,856,340,889
Total German Auto Parts Imports	\$86,932,280,140
Total Domestic Vehicle Production	5,877,322
Vehicles in Operation (2012)	43,431,124
U.S. Auto Parts Export Growth 2009-2014	+49%

Automotive regulatory standards issues are one of the trade-restricting non-tariff barriers (NTBs) for exports of both vehicles and parts into the EU. Conforming to two different standards is costly and time-consuming. According to the Auto Alliance, “a popular U.S. model a manufacturer wanted to sell in Europe required 100 unique parts, an additional \$42 million in design and development costs, incremental testing of 33 vehicle systems, and an additional 133 people to develop, all without any performance differences in terms of safety or emissions.” Achieving regulatory convergence reduces costs associated with the current regulatory inefficiencies, which thereby facilitates increased trade and competitiveness. An ambitious and comprehensive U.S.-EU agreement on regulatory convergence has been viewed as a unique opportunity to foster global harmonization.

Additionally, tariffs are a major cost driver for parts suppliers. Some automotive parts can amount to tariffs of 2-5 percent of total costs; for already assembled parts, tariffs may even account for 15-20 percent of overall costs. Where there are low margins, tariff costs can result in missed business opportunities overseas. Currently, it is estimated that import duties on U.S.-EU trade in automotive parts amounted to \$783 million in 2013. Duties assessed on \$6.9 billion in U.S. exports of automotive parts into the EU were assessed at \$220 million (using estimated weighted average duty of 3.2 percent) in 2013. Industry has argued for complete tariff elimination, but, so far, there has been little progress in the negotiations. Most of the U.S. Government efforts to reduce tariffs have been pushed back in the negotiations, as the Europeans have sought to tie any reduction in tariffs to progress in regulatory coherence.

Within the larger automotive parts industry, the greatest challenges are for the aftermarket parts suppliers. It is difficult for U.S. aftermarket parts companies to enter Germany’s market for various reasons: warranty concerns, a highly sophisticated market, as well as fierce global competition. These challenges represent high barriers for new-to-market (NTM) manufacturers and products, especially for product groups such as lubricants, additives, care products, and other aftermarket parts and accessories. NTM companies must commit to high investments in marketing and/or local sales staff in order to gain market shares, which can only be achieved through displacement of competitors.

Distributors and agents are often very reluctant to take on new products and brands, unless the product’s unique selling proposition is strong and the foreign manufacturer shows commitment to invest in product development in Germany.

Opportunities for U.S. Companies

Due to Germany’s position as a leading automotive technology provider and its sophisticated market structure, accessing automotive sub-sectors is difficult. However, broad market opportunities exist for technological innovations and applications. Moreover, technological advances, historically the sole preserve of the auto manufacturer, are increasingly taking place at the supplier level. OEMs are accordingly differentiating themselves in terms of brand reputation and service.

Due to increasingly strict EU regulations and policy, especially regarding emission control, opportunities arise as manufacturers and suppliers have to adapt to the regulatory requirements. Business opportunities exist especially in high-tech sectors, such as innovative materials and components, technology to increase fuel efficiency, alternative drive technology and new vehicle designs, as well as innovative (urban) mobility concepts.

German OEMs and Tier-suppliers are still making considerable (additional) investments in the United States – for every new model that is manufactured in the U.S./NAFTA-region; OEMs will seek a number of local suppliers. The strategy for foreign suppliers is to source as much locally as possible (ideally 60-80 percent). German OEMs urge their existing partners to follow them to respective foreign manufacturing facilities – but that doesn’t always work, especially not quickly. Accordingly, they will seek local suppliers in order to avoid risks when products need to be shipped to foreign production sites (e.g., risks and costs with regards to transport, currency/exchange rates fluctuations, etc.).

In the long run, the best opportunities for U.S. automotive parts suppliers will come from the passage of the transatlantic Trade and Investment Partnership Agreement (T-TIP). The T-TIP calls for an elimination of all tariffs on trade and a significant reduction on the cost of differences in regulations and standards by promoting greater compatibility, transparency, and cooperation.

It also seeks to establish rules of origin that ensure that duty rates under the agreement with the European Union apply only to those eligible to receive such treatment and define procedures to apply and enforce such rules. The T-TIP offers significant benefits in terms of promoting U.S. international competitiveness, jobs and growth.

According to an EU Economic Assessment report, the elimination of tariffs and 10 percent of U.S. and EU NTBs would result in increased exports of U.S. vehicles and parts into the EU by 207 percent. If 25 percent of those same NTBs are eliminated that would increase U.S. exports by 347 percent (based on 2027 projections). The impact of T-TIP will be especially felt in Germany as the largest producer and exporter of automobiles in the EU.

Subsector Best Prospects

Demand for smaller and more energy-efficient and mid-range passenger vehicle is growing. In Germany, demand in the small car as well as the SUV segment has grown significantly. An environment subsidy introduced in 2009 has facilitated a shift toward small and compact vehicles. A further decisive factor driving demand for smaller vehicles is energy efficiency. Fuel consumption and greenhouse gas emission levels play a pivotal role in auto purchasing behavior.

Also, in the past, the type of car owned spoke volumes about its owner and his or her position in society. Today, cars are no longer the simple indicator of wealth and status that they once were. Societal trends in western societies including “downshifting” and increased environmental awareness are being reflected in new car ownership patterns. In the premium segment, “exclusivity” and “high performance” are giving way to sustainable and urban mobility as selling points. Auto parts that support these concepts should have an increased competitive position.

Alternative Drive Systems

In Germany, there is a major focus on improving internal combustion engine energy efficiency (i.e., downsized and turbo charged engines), developing alternative drive technologies (including electric, hybrid, clean diesel, LPG/CNG, and fuel cell cars), and adapting lightweight materials (such as carbon fiber parts – CFRP) and electronics.

According to a McKinsey study, the overall market value for new vehicles with optimized combustion engines is set to reach between 280 and 300 billion euros by 2020. Impressive developments have already been made in developing smaller, highly charged “homogeneous combustion” engines and dual clutch transmission (DCTs). Demand for alternative drive systems is the result of increased environmental awareness, rising gas prices, and more rigorous CO2 limits for new vehicles. Subsidies and incentives (such as exemptions from vehicle sales tax, free parking and other benefits) are also important drivers of demand.

Emission Control Technology

Fuel consumption and CO2 emission levels of all European-manufactured passenger vehicles are to be reduced to 130g/km of CO2 through drive train-related measures. An additional reduction of 10g/km of CO2 has to be achieved through biofuels and complementary measures. Some of these measures include micro-hybrid implementation in the vehicle architecture; gear change timing gauges, efficient air-conditioning systems and tire-inflation control systems. By 2020, vehicles must comply with a value of 95g/km of CO2. Suppliers of CO2 emission-reducing technologies – which help manufacturers keep vehicles both affordable and appealing to the end customer – are finding unique business opportunities in Germany.

Electromobility

The German Government has made more than one billion euros in funding available as part of its initiative to put one million electric vehicles (EV) on Germany's roads by 2020. The National Electromobility Development Plan has been drawn up to promote all aspects of electric driving including the development of battery technology, grid integration, and market acceptance of electric vehicles. Today, electric vehicle sales are still marginal, but it is the fastest growing vehicle segment.

Biofuels

The German government introduced mandatory blending quotas for biofuels with fossil fuels in 2007. Beyond these quotas, the German government has set a biofuels share by energy content target of 12 percent by 2020 – seven percent above the stated EU target. This should create more opportunities for vehicle electronic control technologies, including sensors and modules to take better advantage of different fuel types.

Other Best Prospects

Opportunities exist in advanced vehicle technologies including automotive semiconductors, innovative lighting technology (LED/laser etc.); software, IT, Car-to-

X communication technology; (smart) driving assistance and infotainment; (integrated) mobility services and concepts; range extender technology; and efficient and economical battery technology.

Brazil

Type: Large Market; Medium Share

While Brazil has a very large market with many positive advantages and U.S. industry exports considerable amounts to the country, the nation's highly protected economy offers limited opportunities for significantly increased exports.

Original
Equipment
Rank

23

Aftermarket
Rank

27

ITA ranks Brazil as the twenty third best market for original equipment parts and the twenty seventh for aftermarket products through 2020. The U.S. shipped \$1.1 billion in auto parts exports to Brazil in 2014. The most reliable avenue for most firms seeking access to the Brazilian market is through the supply chains of vehicle assemblers or larger parts firms already producing in the Brazilian market.

Overview of the Automotive Parts Market in Brazil

Brazil is the largest automotive market in South America with 3.8 million in vehicle sales in 2013. It is also the largest producer of automobiles on the continent with over 40 facilities. The country had a 2013 GDP per capita of \$12,100. Industry sources expect Brazil's market to double its size by 2025, with significant sales increases by Korean, Japanese and Chinese brands. Despite recent gains by Asian-based firms however, Fiat, Ford, GM and VW maintain nearly a 70 share of sales.

Brazil has seen significant increases in vehicle ownership levels in the last decade and there are roughly 180 vehicles per thousand people. Despite the gains, ownership remains less than half of developed market levels, giving significant room for growth. Unlike the U.S. market which skews toward larger luxury vehicles and light trucks, Brazilian market vehicles tend to be mostly smaller and mid-size models.

Brazilian automotive production is geared toward the domestic market and local models usually feature low embedded technology, and market innovations are

limited with flex fuelled vehicles (running off either gasoline or ethanol in any proportion) being a rare exception. Over 90 percent of vehicles sold in the market are currently flex fuel capable. U.S.-based firms are a large presence in Brazil's automotive parts industry.

Challenges and Barriers to Automotive Parts Exports

Brazil has one of the most protected automotive markets in the world. Taxes are calculated in a cascading fashion based on the CIF value (free on board price, freight, insurance, and other port expenses). The import tax is 35 percent, on top of which is the 55 percent industrial product tax, then the state tax (18 percent in Sao Paulo) and the Social Contribution Tax of 11.6 percent. Together these taxes can increase the price of imported cars by over 100 percent.

Figure 1: 2013 Brazil Automotive Market

Sales (units)	3,767,254
U.S. Auto Parts Exports to Brazil	\$1,068,812,369
Total Brazilian Auto Parts Imports	\$16,240,490,876
Total Domestic Vehicle Production	3,767,681
Vehicles in Operation (2012)	29,566,116
U.S. Auto Parts Export Growth 2009-2014	+93%

In spite of the massive protection, vehicle manufacturers rely heavily on imported auto parts. They do so in large part because of the difficulties and high costs of doing business in the country.

The country's high labor costs, generally low automation levels, poor logistics infrastructure, tax, and bureaucracy issues result in significantly higher production costs. As an example, less than 2 percent of automotive parts and virtually no finished vehicles are sent by rail in Brazil. Likewise, there is little shipboard movement of goods despite extensive coastlines and waterways.

Brazil does not allow the import of used vehicle parts except for antiques. Imports of remanufactured parts are only authorized for the original manufacturer subject to the same guarantee as new parts and with a letter from the appropriate association (generally the Brazilian automotive association ANFAVEA) that the imported parts are not made in Brazil. The import license, commercial invoice and the packaging must indicate that it is a remanufactured product. In addition, there is extensive remanufacturing within Brazil.

Opportunities for U.S. Companies

Selling original equipment parts to vehicle assemblers with operations in Brazil is the most reliable opportunity for exporting into the Brazilian market.

Brazil will host the 2016 Summer Olympics and thus is investing to build the necessary facilities, which provide opportunities for construction related-road vehicle parts and accessories. Likewise, PriceWaterhouseCoopers expects light vehicle assembly to increase to 4.5 million units by 2020.

The Brazilian Government started the Inovar Auto program (Decree 7819) in late 2012 to spur greater investment and counter growing imports from Asia. The program offers tax reduction incentives for OEMs that invest in Brazil and localize production. The program continues until December 2017. Companies in the program must commit to having their production achieve a 12 percent reduction in fuel consumption and an 18.84 percent reduction in carbon emission. Suppliers with products that can help firms attain these thresholds cost effectively can potentially have their products become part of the imported supply chain of Brazilian market OEMs.

In addition, there are early opportunities for adapting flex-fueled engines for hybrid systems and there is currently exploratory work underway for plug-in vehicle technologies. In July 2014, China-based BYD announced plans to build a \$90 million electric bus factory in Campinas.

South Korea

Type: Large Market; Small Share

The United States and Korea Free Trade Agreement (KORUS FTA) eliminates tariffs on over 95 percent of industrial and consumer goods within five years. For autos, the FTA attempts to address automotive safety standards and new Korean environmental standards that have served as barriers to U.S. exports to create a more open and fair market for U.S. auto companies.

Original
Equipment
Rank

12

Aftermarket
Rank

18

On March 15, 2012, the United States and Korea agreed to bring into force the United States-Korea Free Trade Agreement (KORUS FTA). Trade between the United States and Korea is bound by the terms of the KORUS FTA. The FTA was negotiated to increase opportunities for U.S. businesses and exports of American goods. It eliminates tariffs on over 95 percent of industrial and consumer goods within five years.

For autos specifically, the FTA attempts to address automotive safety standards and new Korean environmental standards that have served as barriers to U.S. exports to create a more open and fair market for U.S. auto companies. KORUS contains provisions designed to address nontariff barriers, including Korean acceptance of U.S. automotive safety standards for motor vehicles built in the United States and regulatory transparency provisions. The agreement allows manufacturers that sell 25,000 or fewer U.S.-made autos and trucks in South Korea to import their U.S.-made vehicles into South Korea by meeting U.S. federal safety standards rather than certifying to South Korean standards.

The FTA also immediately cut Korea's tariff on U.S. car exports in half from 8 to 4 percent, and it will be fully eliminated in the fifth year. Korea immediately eliminated its 10 percent tariff on U.S. trucks. Since the ratification of the KORUS FTA, the tariff on automotive parts and accessories, which are new or used is zero percent.

In Korea, imported vehicles accounted for about 12 percent of all vehicles in total market share in 2013. According to Ward's, total production of vehicles in Korea was 4.66 million units in 2011, 4.56 million units in 2012, and 4.52 units in 2013. From the 2013 numbers, 3.45 million were produced by Hyundai and Kia, 782,721 by GM, and 129,638 by Renault. In 2013, 930,910 cars were sold in Korea.

Of these, the Hyundai Group led again with 622,438 units sold, followed by GM with 98,642 units, Renault with 53,521 units, Volkswagen with 45,857 units, BMW with 39,397 units, Daimler with 24,780 units, and Ford with 7,214 units (each of the top three have assembly plants in Korea). Chrysler also had sales of 4,143 cars in 2013. Hyundai maintained a 41.6 percent market share, followed by Kia with 29.7 percent, and GM with 9.8 percent. During this same time period, exports of

Figure 1: 2013 Korea Automotive Market

Sales (units)	1,539,855
U.S. Auto Parts Exports to South Korea	\$914,417,518
Total Korean Auto Parts Imports	\$10,393,165,658
Total Domestic Vehicle Production	4,521,429
Vehicles in Operation (2012)	14,577,182
U.S. Auto Parts Export Growth 2009-2014	+202%

U.S. passenger vehicles and light trucks to Korea totalled 12,541 in 2011, 20,084 in 2012, and 25,192 units in 2013.

Today, Korea is ranked the fifth largest vehicle producer in the world. However, Korea's top two automakers have been shifting production to their plants outside of Korea. "In 2008, Hyundai made 60 percent of its vehicles in Korea, but now the country accounts for only about 40 percent of Hyundai production. Kia used to make almost 80 percent of its vehicles in Korean factories, but now 60 percent are made there."ⁱⁱ Factors leading to production in other markets outside Korea include costlier wages making Korea less competitive for auto production, along with strikes and walkouts being disruptive to production.

Overview of the Automotive Parts Market in Korea

Korea ranks as the ninth largest export market for U.S. auto parts overall. According to this analysis, Korea ranks as the ninth best prospect market for OE parts and the 18th best market for aftermarket parts. Factors that contributed to its rank for OE include Korea's high level of domestic vehicle production and Korea currently being a top ten market for overall U.S. parts exports.

Since 2009, U.S. auto parts exports have more than doubled from \$303 million to over \$796 million in 2013. In 2014, U.S. auto parts exports to Korea reached \$914 million, a 15 percent increase from 2013. According to the Korea Auto Industries Co-op Association (KAICA), the total sales volume in the Korea auto parts industry for OE parts was \$46.3 billion in 2013, \$46.1 in 2012, \$46.6 in 2011, \$37.4 in 2010, and \$26.8 in 2009. For aftermarket parts, sales totaled \$2.8 billion in 2013, \$2.8 in 2012, \$2.8 in 2011, \$2.2 in 2010, and \$1.6 in 2009.

Challenges and Barriers to Automotive Parts Exports

Historically, Korea has maintained a number of policies that inhibited U.S. auto exports, including rigid automotive safety and environmental standards unique to the Korean market. These policies have given domestic producers advantages and made it difficult for foreign manufacturers to compete. In 2014, the American Chamber of Commerce in Korea issued a report focused on the key issues and recommendations for the auto industry in Korea. In

this report, AmCham states in 2012 and 2013, "Korea imposed burdensome parts certification, registration and marking requirements...Over the next few years, the list of parts that Korea will require to be certified, registered and marked will dramatically increase...Korea's parts rules are unreasonable and unduly burdensome." These issues, among others, make Korea a challenging market to compete in.

The European Union-South Korea Free Trade Agreement (FTA) entered into force in July 2011. The European automobile industry has faced market issues in South Korea that remain after the FTA, citing that Korean authorities remain reluctant to dismantle existing non-tariff barriers (NTBs), and how new barriers have also emerged.ⁱⁱⁱ However, as a result of the provisions of EU-Korea FTA, U.S. exporters face increased competition from European suppliers.

Given that Korea is one of the largest vehicle manufacturers in the world, the market is already extremely competitive. In 2013, there were 898 first tier suppliers serving the automakers. The number of these suppliers for Hyundai was 347, followed by 332 for Kia, and 322 for GM Korea. China is already the leading exporter of parts to Korea, with most exports coming primarily from Asia or the EU. While the United States exported over \$914 million in auto parts to Korea in 2014, it imported over \$8.3 billion in parts from Korea.

Opportunities for U.S. Companies

OE and Aftermarket

The OE segment accounted for approximately 94 percent of the market, with the aftermarket accounting for the remaining 6 percent. Cooperating with Hyundai and Kia Motors in the United States or with U.S. parts suppliers with a manufacturing base in Korea is highly recommended. Hyundai Motors and Kia Motors have plants in Alabama and Georgia. A good working relationship with Hyundai and/or Kia in the United States will help suppliers enter the Korean market. In addition, examples of the suppliers already operating in Korea include Bosch, Denso, Continental, Magna, Johnson Controls, Delphi, TRW, and Visteon, among many others.

Best subsector prospects for OE include vehicle diagnostic systems, electronic control systems, and low-emission related technologies. For the

aftermarket, demand in Korea is for vehicle diagnostic systems, replacement parts for imported vehicles, high-end car audio systems/components, and high-performance automotive chemicals, such as wax and rust-proofing solutions. It should be noted that Korean consumers typically rely primarily on OEM's aftersales

service networks to service their cars, rather than using independent shops. Therefore, it can be a competitive environment, with suppliers need to offer technological advantages, and may want to try partnering with a Korean distributor.

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Thailand

Type: Large Market; Small Share

As Thailand increases production of advanced technology and fuel-efficient passenger vehicles and trucks, there are excellent opportunities for U.S. auto parts companies that produce electronic components and fuel-efficient parts.

Original
Equipment
Rank

21

Aftermarket
Rank

23

Thailand ranks in the top 20 for U.S. exports of automotive parts, and is also a global production hub for the major automotive companies throughout Southeast Asia.

Overview of the Automotive Parts Market in Thailand

Thailand has gone through a downturn in the automotive sector, with sales and production decreasing significantly over the past year. Despite being the primary hub for exports throughout the Association of Southeast Asian Nations (ASEAN), both the passenger car and commercial vehicles segment took a big hit in 2013 and 2014. However, U.S. automotive parts exports have continued to grow, chiefly because of the need to service existing vehicles and trucks, as well as supplying parts for export from Thailand to other ASEAN markets.

The majority of Thailand's automotive parts exports are original equipment manufacturer (OEM) parts (\$4,757 million), comprising 75 percent of all exports. This is followed by engines (\$889 million) at 15 percent and spare parts (\$551 million) at nine percent. Japanese companies hold over 80 percent of the domestic and regional market share. Mitsubishi has recently started exporting the country's first U.S. bound vehicles. Ford will shift production of the Fiesta from Mexico to Thailand in 2016. According to many companies, the extensive presence of suppliers and efficient infrastructure continue to attract more value-added investments.

Challenges and Barriers to U.S. Automotive Parts Exports

Domestic sales of vehicles decreased sharply in 2014 because of political strife, and some automakers and suppliers are adopting a "wait and see" attitude towards additional investment until the situation subsides. For example, Mitsubishi Motors and Nissan Motor announced in October delays to the launch of their eco-car production in the country, further adding to the country's woes.

U.S. automotive manufacturers currently control a very small share of the market. With the downturn in vehicle sales, Ford and GM's vehicle production declined 23 percent in 2013 and 33 percent in 2014. Most households and businesses have put their spending on hold while they seek clarity on the political situation. Commercial vehicles have also taken a hit because of

Figure 1: 2013 Thailand Automotive Market

Sales (units)	1,330,680
U.S. Auto Parts Exports to Thailand	\$277,804,481
Total Thai Auto Parts Imports	\$14,846,180,247
Total Domestic Vehicle Production	2,457,057
Vehicles in Operation (2012)	13,922,000
U.S. Auto Parts Export Growth 2009-2014	+216%

the drop in tourism numbers. The dour outlook for the domestic market has resulted in automakers scaling back their domestic production.

High tariffs in the automotive sector remain an impediment to access the Thai auto market. Ad valorem tariffs can be as high as 80 percent, for imports that compete with domestically produced automobiles and parts. In addition, excise taxes on automobiles in Thailand are based on various vehicle characteristics such as engine size, weight and wheelbase. The tax calculation remains complex and heavily favors domestically manufactured vehicles. Excise taxes on passenger vehicles range from 30 to 50 percent, while pickup trucks, mostly produced in Thailand, are taxed at a rate of three percent. Small passenger cars using E-20 gasoline and “eco” cars face reduced excise taxes of 25 percent and 17 percent, respectively.

Opportunities for U.S. Companies

Despite the recent decrease in vehicle sales and production, Thailand is still an export hub in Southeast Asia, with the most advanced production facilities in all of Southeast Asia. Thai exports of automotive components will do well for two major reasons: 1) a weakening of the Thai baht has increased competitiveness of auto component exports, and 2) auto component manufacturers still rely on Thailand as an optimal base for manufacturing because of the high skill level of the workforce, and available technology. However, Japanese automakers are well entrenched in Southeast Asia, which will impact U.S. automotive parts suppliers hoping to increase market share in Thailand.

Thailand’s auto component market will remain a bright spot for the auto sector, as exports of components to regional markets will continue to grow. For the first nine months of 2014, the value of auto component exports from Thailand grew 5.2 percent year-on-year to \$1.2 billion, while passenger car exports declined by 5.6 percent y-o-y to \$533 million over the same period.

As the ASEAN Economic Community (AEC) moves towards implementation in 2015, we see a greater potential for free trade in the region. While Japan already has an Economic Partnership Agreement with ASEAN, which removes most duties in the auto sector trade between them, the AEC will allow its member countries to negotiate effectively as a trading block with

other trading partners to lower tariffs and boost trade in key sectors such as automotive.

Furthermore, the onset of AEC will see inter-country tariffs between ASEAN countries removed, which would then see automakers taking advantage of several markets from one hub. This trend would further attract auto sector investment in Thailand, as new investment will benefit from the strengths of the country as well as from the clustering effects of nearby markets.

In 2007, Thailand announced an investment promotion scheme for Eco-Car manufacturing, whereby maximum incentives were offered for integrated car assembly and key parts manufacturing projects. Under the incentive program, projects, which must have a minimum investment value of approximately \$144 million, were offered a corporate income tax exemption of eight years, regardless of the projects’ location in the country, along with duty-free importation of machinery. Ten automakers have applied for the second phase of the eco-car scheme.

Thailand’s aim is to increase car production to three million units and further strengthen its presence in ASEAN. It hopes to rival North America and Europe in the production of eco-cars. The manufacturers that have applied to the second phase of the scheme are Toyota, Suzuki, Honda, Nissan, Mitsubishi, Ford, Mazda, General Motor Company, Volkswagen and MG.

Companies are also looking to Thailand as a hub for their vehicle maintenance network in Southeast Asia. For example, Toyota has been working with affiliate companies, Denso and Aisin Seiki, to open auto repair shops in Thailand and Indonesia in 2014. Both countries have large domestic vehicle fleets (20 million for Indonesia and 15 million for Thailand), which make the after-sales market very attractive. These vehicles will require regular servicing and maintenance. There are other vehicle-servicing opportunities in the frontier markets such as Burma and Cambodia.

The presence of more than 690 Tier 1 and 1,700 Tier 2 and 3 suppliers lends support to vehicle production and further encourages investment from other component manufacturers, which enjoy lower costs from being close to their suppliers and customers. Furthermore, a greater number of recent auto industry investments have been gravitating towards higher value-added

projects. As Thailand slowly moves up the value-chain of production, more high tech investments are expected.

Automotive Electronics

Innovation in electronic systems is driving the automotive parts industry in Asia. Most of the automotive electronics used in cars produced in Thailand are imported from Malaysia and Japan. Because of the current limited number of automotive electronics producers in Thailand, there are a number of good opportunities for U.S. suppliers. These include electronic fuel injection systems, substrates for catalytic converters, CVTs, electronic stability controls, and regenerative braking systems, among numerous other products. Makers of high technology auto parts can locate anywhere and still receive maximum incentives and tax breaks.

NGV Vehicles

The Ministry of Energy supports fuel-efficient transportation through a natural gas vehicle (NGV)

initiative. This initiative includes the introduction of over 10,000 natural gas-powered taxicabs, natural gas subsidization through PTT Public Company Ltd., a reduced import duty on NGV tanks from 17 percent to 10 percent, and a reduced import duty on NGV control system parts and components from 35 to 10 percent.

Eco-Car Parts

Eco-car parts continue to receive incentives to promote the growth of the eco-car market locally and abroad. The incentives will be applied exclusively to materials that cannot be produced locally. Opportunities exist especially in electric vehicle batteries.

E85

The Ministry of Finance is offering three-year exemption on import duties of foreign auto parts used to make vehicles E85-ready. The Ministry has also reduced the excise tax on cars using E85 to 22, 27, and 32 percent, depending on engine size.

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Saudi Arabia

Type: Large, Growing Market; Medium Share

The Saudi's auto market has been one of the fastest growing in the world. Despite falling oil prices, the current outlook is positive for continued growth in Saudi Arabia's economy and its automotive sales.

Original
Equipment
Rank

30

Aftermarket
Rank

13

Saudi Arabia's economy is the largest in the Middle East and North Africa region. The Saudi auto market has been developing at a robust pace, thanks to the strength of the Saudi Arabian economy, favorable auto financing, low gas prices, high private consumption levels and a growing population all contribute to Saudi's growth in vehicle sales, which bodes well for a growing aftermarket.

Saudi Arabia is the 22nd largest destination for U.S. auto parts exports, and the market has relatively few barriers for U.S. companies. U.S. parts exports are assumed to be overwhelmingly for aftermarket use, since Saudi Arabia currently has very limited local vehicle and parts production.

Overview of the Automotive Parts Market in Saudi Arabia

Saudi Arabia is the largest auto and auto parts market in the Middle East, accounting for an estimated 40 percent of all vehicles sold in the region. It is also the region's largest importer of automotive products, with some of these imports being re-exported. Currently, there is a small amount of local auto parts and truck production, but not light vehicle production. The majority of all types of vehicles and parts sold in the country are imported. Approximately 1 million vehicles (passenger cars, commercial vehicles and trucks), with a value of almost \$21 billion were imported into Saudi Arabia in 2013.

U.S. auto parts exports to Saudi Arabia have grown from \$274 million in 2009 to almost \$336 million in 2014. In 2013 (latest figures available), the United States was Saudi Arabia's fifth largest source of auto parts, with 9.2 percent of the import market. Japan was the largest source, comprising 22.6 percent of the imports, followed by Germany, China and Korea.

According to Ward's, the country was estimated to have 4 million passenger vehicles on the road and 2.1 million commercial vehicles on the road in 2013. Another source estimates that more than half of the vehicles on the road in Saudi Arabia are more than 5 years old, and approximately 22 percent are more than ten years old.

There is a lack of official government statistics for vehicle sales in Saudi Arabia, but sales estimates range

Figure 1: 2013 Saudi Automotive Market

Sales (units)	773,000
U.S. Auto Parts Exports to Saudi Arabia	\$335,829,598
Total Saudi Auto Parts Imports	\$5,337,491,280
Total Domestic Vehicle Production	Unknown
Vehicles in Operation (2012)	3,803,000
U.S. Auto Parts Export Growth 2009-2014	+23%

from 600,000 to 820,000 total vehicles per year. Business Monitor International (BMI) estimates that aggregate vehicle sales for 2014 in Saudi Arabia are expected to increase 19 percent from 2013, reaching 815,000 units. Frost & Sullivan estimates passenger vehicle sales totaled 714,183 in 2013. Some of the popular passenger vehicles in Saudi Arabia include: Toyota's Hilux, Corolla, Camry and Land Cruiser; Hyundai's Elantra and Accent; General Motors' Yukon, Tahoe, Suburban, and Impala; and, Ford's Expedition, Ranger, Taurus, and Explorer.

Japanese automakers lead in market share, followed by Korean, American, and European automakers. Toyota dominates the market with an estimated 40 percent market share for 2013 vehicle sales, and over half of Saudi's vehicles on the road are estimated to be produced by Toyota. Saudi Arabia's re-registration is once every five years for privately-owned vehicles.

BMI forecasts growth from 2014-2019 to be approximately 19 percent for new passenger cars and commercial vehicle sales. The Saudi auto market is expected to reach annual sales of one million units by the end of the decade. Saudi's population is 29 million. The country's growing youth population, rising disposable income levels, its favorable financing environment, and greater public and private sector investments, have all contributed to Saudi's increased vehicle demand. Continued sales growth is expected for all segments, from the ultra-luxurious to off-road vehicles to affordable smaller cars. In addition, sales of commercial vehicles are also expected to increase due to a number of infrastructure expansion projects.

The growth of vehicles, dealerships and aftermarket distributors in Saudi Arabia inevitably generates more demand for aftermarket parts. In addition, the region's climate necessitates an increased need to regularly replace auto parts, such as tires and batteries.

In 2014, Saudi Arabia established corporate average fuel economy standards (CAFE) similar to standards in the United States to reduce domestic oil consumption. The standards aim to improve fuel economy in Saudi Arabia for total road transportation by 2025. These changes are not expected to significantly impact exports of larger U.S.-made SUV's and light trucks and their aftermarket parts.

In an effort to diversify the domestic economy away from dependence on petroleum and generate jobs for its young and growing population, the Saudi government is advocating for the development of a domestic automotive industry and has encouraged global vehicle manufacturers to establish local manufacturing. Currently, there is some limited local production and assembly of filters, radiators, batteries, hydraulic oils, lubricants, exhaust systems and converters.

Also, Isuzu, Daimler, Volvo and MAN are assembling trucks on a small scale in Saudi Arabia. There have been some recent reports of automakers who are considering producing light vehicles in Saudi Arabia, and construction of an assembly plant(s) could possibly begin within the next couple of years. As automotive sales in the Middle East and North Africa grow, the global automotive industry's interest in establishing local production in Saudi Arabia could increase and the country could become a regional manufacturing hub.

Challenges and Barriers to Automotive Parts Exports

Saudi Arabia's industrial standards and conformity assessments are the most significant trade barriers affecting U.S. manufacturers. The Saudi Arabia Standards Organization (SASO) has issued numerous industry standards and regulations affecting the automotive industry. As with other imports, SASO mandates that a Certificate of Conformity is needed for the import of auto aftermarket parts. Shipments arriving without a Certificate of Conformity will be rejected at the Saudi port of entry. In addition, labeling and marking requirements are also compulsory for any products exported to Saudi Arabia. For example, the country of origin must be marked on all imported products.

U.S. auto parts suppliers have expressed difficulties understanding Saudi's import requirements and complying with the burdensome documentation and certification necessary for importing parts. In addition, U.S. exporters have also experienced customs clearance delays and enforcement inconsistencies.

The Saudi Arabian automotive market is highly competitive. The large number of global automakers selling in the market, as well as the market's growth, has aftermarket suppliers from around the globe competing for sales. In addition, currency exchange

rates can obviously affect U.S. automakers' and suppliers' price competitiveness. Suppliers to Japanese and Korean vehicles have the greatest potential for volume sales, as these vehicles are estimated to account for almost 70 percent of the existing car sales. Additional competitive pressure in Saudi's automotive market is the rise in sales of vehicles from China, which are lower in price and are perceived to be less expensive to maintain.

Most used parts are banned from being imported into Saudi Arabia, including tires, but reconditioned engine and transmission parts are exempt if they comply with certified standards. There is also a ban on the import of auto parts over five years old as well as autos and light trucks (under five tons) over five years old.

Intellectual property protection has steadily increased in the Kingdom and anti-counterfeiting laws exist. In addition, the Saudi government has made efforts to stop counterfeit products from entering into the country. However, the continued availability of counterfeit aftermarket parts remains a concern for U.S. automotive companies.

Opportunities for U.S. Companies

There are relatively few barriers to exporting automotive products to Saudi Arabia beyond the conformity requirements mentioned above. Since there is currently negligible automotive-related production in Saudi Arabia, auto-specific protective barriers do not exist. In addition, ongoing auto sales growth, favorable demographics and disposable income levels, and low import tariffs and fuel prices, contribute to good export potential for aftermarket parts to Saudi Arabia. The tariff for radiators and filters is 12 percent, and for all other spare parts is five percent. There are no other VAT or other taxes added to the sales price. It is unknown whether barriers will arise as Saudi's planned automotive industry is developed, or if there will be future opportunities for U.S. original equipment parts exports.

Saudi Arabia currently is the fourth largest destination for U.S. exports of new passenger cars and the seventh largest destination for used vehicles, which presents an opportunity for increased exports of U.S. aftermarket parts for those vehicles. U.S. exports to Saudi Arabia of new passenger vehicles and light trucks totaled 104,083 units with a value of \$3.2 billion in 2014. In addition, 18,687 used vehicles were exported from the United States to Saudi Arabia in 2014.

U.S. vehicle exports to Saudi Arabia are supported by Saudi's acceptance of vehicles produced to U.S. standards. Relatively few homologations are needed prior to export. U.S. automotive companies exhibiting at the annual Automotive Aftermarket Products Expo (AAPEX), the Specialty Equipment Market Association's SEMA Show, and Automechanika Middle East have an opportunity to meet a number of Saudi buyers who attend these shows. In addition, the Specialty Equipment Market Association (SEMA) has a Market Development Cooperator Program award with ITA to help U.S. specialty parts companies increase their exports to Saudi Arabia and other Gulf Cooperation Council markets. Each spring, SEMA organizes an event in the UAE where U.S. specialty parts companies meet potential buyers from the region.

Aftermarket parts for off-road vehicles and SUV's have excellent potential in Saudi Arabia. SUV's and 4x4 cars are especially popular in Saudi Arabia and there is a high level of interest in off road and desert driving. Germany research firm, GfK, estimates that 19 percent of Saudi's vehicles are 4x4 vehicles and 11 percent of its vehicles are light trucks. Larger vehicles are also popular in order to accommodate large families, and the Detroit Three excel in this segment, particularly the larger SUV market.

Given Saudi's high disposable income levels and an interest in modified/luxury vehicles, there is great demand for specialty performance and appearance products. U.S. companies command a leading position in the supply of transmissions, tuning and high performance parts and kits, steering, suspension, and brake components and parts.

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Colombia

Type: Medium, Growing Market; Large Share

While Colombia has a fairly large automotive market it is subject to extremely high competitive pressures. Most U.S. parts firms have open access to the Colombian market and face zero or declining tariffs however most other major automotive producing countries have equivalent access. U.S. products do enjoy reputations for high quality and suppliers can develop the necessary relationships to secure sales.

Original
Equipment
Rank

13

Aftermarket
Rank

16

ITA projects Colombia to be the thirteenth best market for original equipment parts and the sixteenth best market for aftermarket products through 2020. Over \$337 million in U.S. auto parts were exported to Colombia in 2014, with millions more worth of exports expected by the end of the decade.

Overview of the Automotive Parts Market in Colombia

Colombia is the second most populous country in South America, with a per capita GDP of \$11,100. It is one of the larger automotive markets in South America with 293 thousand vehicles sold in 2013. Sales are projected to grow to 408 thousand units in 2019. The country ranks behind only Brazil and Argentina in South American vehicle production.

Most Colombian production is complete knockdown (CKD) kit assembly and therefore reliant on component imports. GM, Renault, and Daimler are among the handful of firms with local assembly operations. Like much of the region, vehicle ownership levels are relatively low with roughly 53 passenger cars per 1,000 people. Thus, there is significant potential for growth.

The United States has a trade agreement with Colombia providing tariff free market access for most automotive parts. However, some parts are subject to staged reductions over five years to 10 years (starting in May 2012). Likewise, Colombia has negotiated agreements with a number of countries and with its

location may be able to serve as a production center for the region. Many of Colombia's FTAs are with other countries with strong automotive sectors so competition will be high. That competition is expected to increase with Colombia's recent FTA with the EU.

The Colombian government is working to address the increased competition for assembly operations wrought by its trade agreements by lowering tariffs on automotive parts. This action will further reduce the competitive benefits offered by the agreement with the United States for U.S. automotive parts exporters. Analysts expect respectable growth in near term Colombian automotive sales but it is very likely many of the vehicles sold will be built outside of the Colombian market.

Colombia has been a major player in the regional

Figure 1: 2013 Colombia Automotive Market

Sales (units)	293,846
U.S. Auto Parts Exports to Colombia	\$337,998,820
Total Colombian Auto Parts Imports	\$1,783,645,252
Total Domestic Vehicle Production	74,900
Vehicles in Operation (2012)	2,526,000
U.S. Auto Parts Export Growth 2009-2014	+28%

automotive market. There are over 50 brands and 270 models present in the Colombian market. Chevrolet is the largest seller followed by Renault and Hyundai. KIA and Nissan have been gaining market share as have Chinese manufacturers. GM has been investing in its Colombian facilities.

Colombia's top imports in 2013 were concentrated in tires (12 percent), chassis (2 percent), and filters (2 percent). Colombia does not allow import of used vehicles or parts. The country is formulating policies to allow the import of remanufactured products to meet commitments under its FTA with the United States. Those commitments can be found under Chapter Four, Rules of Origin and Origin Procedures, Annex 4.18 of the agreement.

Challenges and Barriers to Automotive Parts Exports

International competition is the main challenge due to the country's many recent FTAs with countries home to large automotive manufacturing sectors including the U.S., Mexico, South Korea and recently the EU. Combined with efforts to relax automotive parts tariffs to aid local assembly operations, the market is very competitive for automotive parts importers. The situation is particularly acute for the OEM side of the market.

With further FTAs under negotiation including one with China, the Colombian assemblers will have a hard time maintaining market share. Local assemblers are hampered by minimal economies of scale with the additional headwinds caused by poor local transportation infrastructure. Mazda recently decided to close its production facility in the country due to the high cost of production and low volumes opting instead to meet its Colombian demand from its Mexican operations.

Opportunities for U.S. Companies

Research firm BBVA forecast that Colombia's vehicle stock will double 2010 levels in 2020, equating to 7.9 percent annual growth. Roughly 40 percent of the vehicles on Colombian roads were assembled locally while the remaining 60 percent of vehicles were imported from the United States, South Korea, Mexico, India, Japan, Ecuador and China.

Among 106 countries competing for sales in the Colombia automotive parts market, the U.S., Brazil, Japan and China have the highest market shares. The high import percentage represents good opportunities for imported parts and accessories, but especially for U.S. products, which enjoy name recognition and quality reputations. In addition, many of the models offered in Colombia are also sold in the United States including many GM vehicles so most parts are available for export from U.S.-based manufacturers.

Through its multiple FTAs, Colombia has access to much of the global automotive market. The Colombian government is trying to encourage the adoption of Colombia as a platform for the assembly of vehicles and parts for the Colombian and regional markets. With the high competition and low economies of scale in its home market, however, it will be difficult for Colombia to achieve this end. The effort is further hindered in the short term by the ongoing economic problems in Venezuela and Ecuador, which are traditional export markets for Colombia.

With the highly competitive market, it is possible that additional vehicle assemblers could choose to service the market from other operations, reducing the demand of OE components. However, as long as Colombian production continues, servicing local kit production is the best prospect for U.S. automotive parts producers seeking to enter the Colombian market.

Many of the vehicles on Colombian roads are older and the poor Colombian road infrastructure leads to premature vehicle wear. Combined with lower wages that make vehicle repair economical over a longer vehicle service life, there is a high demand for aftermarket repair parts. Suspension and steering related components are particularly impacted by road conditions.

Colombia has made some moves toward electrification of its vehicle fleet including electric taxis in Bogota. However, global sales of electric vehicles are mainly in regions such as Norway and California where purchase incentives reduce currently higher purchase prices for these vehicles. Without significant Colombian incentives EVs are unlikely to sell in significant numbers near term. Specialty products catering to off-road vehicles are another prospect area.

The Colombian government is making significant efforts to expand the number of flex-fuel vehicles in its fleet with plans that 100 percent of vehicles will be flex fuel capable by 2016. The vehicles receive tax benefits

and incentives, and there is a VAT exemption on fuel. These incentives and the low cost of flex-fuel vehicle technologies (roughly \$100 per vehicle) should enable significant opportunities for related products.

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Appendix 1: Automotive Parts Codes Included in This Study

3819000000, 3820000000, 4009120020, 4009220020, 4009320020, 4009420020, 4009500020, 4011100010, 4011100050, 4011101000, 4011105000, 4011200005, 4011200010, 4011200015, 4011200020, 4011200025, 4011200030, 4011200035, 4011200050, 4011201005, 4011201015, 4011201025, 4011201035, 4011205010, 4011205020, 4011205030, 4011205050, 4012105020, 4012106000, 4012110000, 4012120000, 4012190000, 4012200000, 4013100010, 4013100020, 4013900000, 4016995010, 6813100000, 6813200000, 6813810000, 6813890000, 6813900000, 7007110000, 7007211000, 7007215000, 7009100000, 7320100000, 7320201000, 8301200000, 8302103000, 8302300000, 8407342000, 8407342030, 8407342090, 8408202000, 8409914000, 8409994000, 8413301000, 8413309000, 8413911000, 8413919010, 8414308030, 8414593000, 8414596040, 8414598040, 8415200000, 8415830040, 8421230000, 8421310000, 8421394000, 8425490000, 8426910000, 8431100090, 8482101000, 8482105044, 8482105048, 8482200020, 8482200030, 8482200040, 8482200060, 8482200070, 8482200080, 8482400000, 8482500000, 8483101020, 8483103010, 8507100050, 8507100060, 8507904000, 8507904050, 8511100000, 8511200000, 8511300040, 8511300080, 8511400000, 8511500000, 8511802000, 8511806000, 8511906020, 8511908000, 8512202000, 8512204000, 8512300000, 8512300030, 8512300050, 8512402000, 8512404000, 8512902000, 8512905000, 8512908000, 8517120020, 8519812000, 8525201000, 8525206000, 8525209020, 8525209050, 8525601010, 8527190000, 8527210000, 8527290000, 8531800038, 8531809038, 8536410005, 8539100020, 8539100040, 8544300000, 8707100020, 8707100040, 8707905020, 8707905040, 8707905060, 8707905080, 8708100010, 8708100050, 8708210000, 8708290010, 8708290025, 8708290050, 8708290060, 8708295025, 8708295070, 8708295170, 8708300010, 8708300050, 8708310000, 8708390000, 8708401000, 8708401110, 8708401150, 8708402000, 8708403500, 8708406000, 8708408000, 8708500050, 8708504110, 8708504150, 8708507200, 8708600050, 8708700050, 8708800050, 8708805000, 8708807000, 8708915000, 8708918000, 8708925000, 8708928000, 8708935000, 8708945000, 8708948000, 8708950000, 8708990045, 8708990050, 8708990070, 8708990090, 8708990095, 8708995800, 8708996100, 8708998015, 8708998030, 8708998075, 8708998115, 8708998130, 8708998175, 8716900000, 8716905000, 9029100000, 9029205000, 9029900000, 9104000000, 9401200000, 9401901000, 9401901010, 9401901080, 9403901000

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Appendix 2: U.S. Automotive Parts Exports 2009-2014

PARTNER	2009	2010	2011	2012	2013	2014
WORLD	42,860,733,372	58,344,568,587	67,833,279,640	74,996,225,409	77,530,093,222	80,961,247,769
Canada	19,551,850,743	25,896,696,202	28,417,297,791	31,837,622,201	31,773,286,141	30,420,072,987
Mexico	12,088,545,327	17,456,141,461	21,474,852,782	24,342,554,463	26,584,975,208	29,136,941,959
China	939,480,475	1,285,958,420	1,540,714,169	1,593,037,895	2,282,844,170	2,587,345,630
Germany	1,245,366,157	1,550,711,183	1,710,967,042	1,636,098,278	1,721,047,077	1,856,340,889
Australia	687,394,127	1,084,697,698	1,392,438,529	1,934,975,974	1,488,052,738	1,437,114,690
Japan	835,203,215	1,310,011,456	1,439,386,822	1,486,660,726	1,341,593,339	1,428,965,461
Brazil	554,025,790	941,292,708	1,079,801,779	1,009,395,849	1,085,387,679	1,068,812,369
United Kingdom	596,931,484	922,043,926	1,115,835,758	1,062,629,261	953,970,349	1,387,071,769
Korea	303,287,155	490,965,292	807,824,708	705,804,565	795,719,100	914,417,518
Chile	288,877,316	408,520,723	508,257,551	565,094,060	561,339,084	541,886,360
Venezuela	672,826,204	653,913,000	788,790,437	969,867,420	551,874,025	363,807,437
UAE	246,587,749	305,819,297	393,905,264	500,054,054	542,779,872	681,606,117
Russia	52,950,997	94,957,576	260,898,811	287,979,652	493,337,108	546,273,161
France	461,482,016	585,743,954	513,712,793	467,972,531	470,466,573	474,793,113
Belgium	317,751,492	448,492,945	551,869,704	519,143,654	424,517,041	487,420,819
Hong Kong	122,219,060	147,318,557	249,755,099	277,247,299	396,745,333	820,966,393
Singapore	253,905,009	347,131,185	422,825,008	435,468,362	377,588,875	348,936,462
Thailand	87,891,013	127,382,156	167,823,224	326,703,167	376,012,410	277,804,481
Italy	139,788,393	193,166,064	247,057,723	264,455,596	334,118,821	509,594,284
Netherlands	202,449,277	232,159,982	280,785,851	229,275,807	317,357,072	566,861,132
South Africa	182,781,884	256,111,152	347,751,007	355,018,921	316,311,504	356,683,725
Saudi Arabia	273,682,845	273,081,331	291,129,833	288,156,791	308,714,212	335,829,598
Colombia	160,968,118	225,442,983	269,904,892	287,690,398	298,848,614	337,998,820
Spain	113,445,309	151,230,786	156,688,730	176,541,089	253,296,752	299,293,696
Peru	96,745,774	114,967,033	157,660,862	209,639,592	224,833,832	237,404,763
India	132,708,404	214,185,306	280,382,038	308,335,184	201,351,425	237,178,916
Argentina	173,732,425	171,756,913	182,746,978	125,296,180	184,424,223	240,490,414
Sweden	111,134,702	181,936,252	183,740,716	149,034,199	148,874,349	139,957,840
Poland	56,148,375	70,622,083	133,683,471	126,140,352	137,869,778	163,614,911
Turkey	62,738,497	49,274,549	97,987,060	97,500,076	106,922,326	155,326,769

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Appendix 3: Methodology

When trying to discern where the future growth markets will be for both OE and aftermarket parts, there are a number of potential variables to consider. One is the size of the domestic automotive market. This can be seen by the trends in vehicle sales in recent years, the number of vehicles on the road in the market, the relative wealth in the market, and the average age of the vehicles in the market, among others.

One complication in this analysis is that HTS codes do not offer a distinction between which parts are OE and which are aftermarket. In addition, the supplier itself may not know the intended use of its part as, for example, the part manufactured by a supplier of breaks may not necessarily know whether the part will ultimately be used as a OE part by the manufacturer in its service network or whether it will be used as a replacement part for a damaged break after years of use.

One way to distinguish this to some degree is to determine whether the domestic market has a locally based vehicle production industry. Regions like the UAE that do not manufacture vehicles would be expected to be importing a large proportion of aftermarket parts to either replace damaged parts, or parts to enhance performance. In addition, markets with an older fleet on the roads and with limited new sales would also be likely to be purchasing a larger share of aftermarket parts in order to keep these older fleets running and on the road, rather than purchasing new vehicles. Given these constraints, the models we developed for OE and aftermarket are below:

OE Model: $(\text{Sales} \times .05) + (\text{U.S. Parts Exports} \times .2) + (\text{U.S. Import Share} \times .15) + (2019 \text{ Projected Production} \times .15) + (\text{Distance} \times .05) + (\text{Domestic Production} \times .2) + (\text{Openness to Trade} \times .2)$ – Australia assumed no domestic production and zero projected production

Aftermarket Model: $(2019 \text{ Projected Sales} \times .1) + (\text{U.S. Parts Exports} \times .35) + (\text{U.S. Import Share} \times .2) + (\text{Age Proxy} \times .1) + (\text{Distance} \times .05) + (\text{Openness to trade} \times .2)$

The variables and weights used in each of the models are shown above. For the OE model, the Sales variable was calculated using Ward's Automotive data and was the average sales within each market from 2011-2013. A three-year average was used to account for any anomalies and spikes/decreases in sales in a given year. The U.S. Parts Exports variable also was a three year average between 2011-2013 that shows the amount of automotive parts exports to each market using the Schedule B codes in Attachment 1.

We gave this variable a fairly large weight under the assumption that recent past exports would be a good indicator of future exports as well. The Import Share variable was calculated using U.N. Merchandise Trade data and HS codes at the six-digit level. The import share calculates what percentage of automotive parts imported into a market were imported from the United States in relation to other countries. The 2019 Projected Production variable is a forecast of vehicle production levels calculated by Business Monitor International. The Distance variable is a measure to account for the distance between two markets by measuring the distance in kilometers between the largest cities in a market from the United States. The Domestic Production variable accounts for the level of vehicle production in given markets based on Ward's Automotive. The variable was calculated again using a three-year average from 2011 to 2013. The Openness to Trade variable comes from the International Chamber of Commerce's 2nd edition of the Open Markets Index. Each of these variables was then standardized to give each country a ranking between 0-1. The results of these rankings for each variable in each of the markets analyzed can be found in the table below.

Figure 1: OE Model Standardized Scores

	Market Size (2011-2013)	U.S. Parts Exports (2011-2013)	U.S. Import Share Average 11-13	Production Projected 2019	Distance	Total Domestic Production (2011-2013)	Openness to Trade
Canada	0.0818	1.0000	1.0000	0.0774	1.0000	0.1167	0.6286
Mexico	0.0476	0.7861	0.9353	0.1380	0.8176	0.1461	0.2857
China	1.0000	0.0560	0.0764	1.0000	0.3244	1.0000	0.2286
Germany	0.1684	0.0522	0.0360	0.2060	0.6451	0.3005	0.6286
Belgium	0.0273	0.0133	0.0379	0.0067	0.6544	0.0276	0.8000
Japan	0.2487	0.0435	0.1139	0.3299	0.3333	0.4677	0.4857
Netherlands	0.0263	0.0060	0.0332	0.0009	0.6560	0.0041	0.7714
Chile	0.0168	0.0148	0.2863	0.0001	0.5005	0.0002	0.5429
United Kingdom	0.1185	0.0311	0.0585	0.0616	0.6752	0.0775	0.5714
Sweden	0.0149	0.0022	0.0281	0.0084	0.6265	0.0105	0.6857
France	0.1192	0.0128	0.0367	0.0606	0.6579	0.1018	0.5143
Korea	0.0762	0.0221	0.1266	0.1454	0.3197	0.2297	0.4571
Colombia	0.0138	0.0063	0.2954	0.0046	0.7754	0.0068	0.2857
Spain	0.0408	0.0033	0.0135	0.0788	0.6622	0.1086	0.4571
Poland	0.0153	0.0013	0.0149	0.0235	0.5921	0.0346	0.5143
Italy	0.0801	0.0062	0.0310	0.0000	0.5895	0.0355	0.4857
Venezuela	0.0040	0.0221	0.5338	0.0004	0.8137	0.0047	0.0000
Turkey	0.0421	0.0003	0.0270	0.0496	0.5134	0.0566	0.4000
South Africa	0.0291	0.0081	0.1446	0.0168	0.2217	0.0271	0.3429
Russia	0.1452	0.0083	0.0651	0.0637	0.5492	0.1070	0.2286
Thailand	0.0578	0.0064	0.0332	0.0689	0.1336	0.1063	0.3429
India	0.1684	0.0056	0.0808	0.1797	0.2747	0.2004	0.1429
Brazil	0.1858	0.0316	0.1247	0.1063	0.5378	0.1777	0.0571
Argentina	0.0430	0.0023	0.0440	0.0206	0.4829	0.0399	0.1429
Hong Kong	0.0002	0.0070	0.1365	0.0000	0.1966	0.0000	1.0000
Singapore	0.0000	0.0104	0.1511	0.0000	0.0426	0.0000	1.0000
Australia	0.0527	0.0494	0.2772	0.0000	0.0000	0.0109	0.6000
Peru	0.0072	0.0034	0.2905	0.0000	0.6545	0.0000	0.4571
UAE	0.0135	0.0126	0.0000	0.0000	0.3221	0.0000	0.7429
Saudi Arabia	0.0331	0.0066	0.1489	0.0000	0.3545	0.0000	0.4857

The aftermarket model included a number of the same variables that were included in the OE model (U.S. parts exports, U.S. import share, distance, and openness to trade). The 2019 Projected Sales variable in this model is also a forecast of vehicle sales developed by Business Monitor International. The Vehicle Age variable is a proxy variable derived by creating a measure using sales as a share of vehicles in operation. It is assumed that a country that has a lower share of new vehicles sales in relation to the number of vehicles in that market will have an older vehicle fleet. These results can be seen in the table below.

Figure 2: Aftermarket Model Standardized Scores						
	2019 Projected Sales	U.S. Parts Exports (2011-2013)	U.S. Import Share 2011- 2013	Vehicle Age Proxy	Distance	Openness to Trade
Canada	0.0650	1.0000	1.0000	0.1565	1.0000	0.6286
Mexico	0.0448	0.7861	0.9353	0.0629	0.8176	0.2857
China	1.0000	0.0560	0.0764	1.0000	0.3244	0.2286
Singapore	0.0039	0.0104	0.1511	0.1092	0.0426	1.0000
Chile	0.0124	0.0148	0.2863	0.3629	0.5005	0.5429
Peru	0.0086	0.0034	0.2905	0.4598	0.6545	0.4571
Belgium	0.0206	0.0133	0.0379	0.2230	0.6544	0.8000
Australia	0.0382	0.0494	0.2772	0.1695	0.0000	0.6000
Netherlands	0.0213	0.0060	0.0332	0.1261	0.6560	0.7714
Germany	0.1206	0.0522	0.0360	0.1501	0.6451	0.6286
UAE	0.0181	0.0126	0.0000	0.3614	0.3221	0.7429
United Kingdom	0.1178	0.0311	0.0585	0.1445	0.6752	0.5714
Saudi Arabia	0.0321	0.0066	0.1489	0.4234	0.3545	0.4857
Sweden	0.0135	0.0022	0.0281	0.1416	0.6265	0.6857
Japan	0.1856	0.0435	0.1139	0.1651	0.3333	0.4857
Colombia	0.0129	0.0063	0.2954	0.2567	0.7754	0.2857
France	0.0745	0.0128	0.0367	0.1451	0.6579	0.5143
Korea	0.0504	0.0221	0.1266	0.2247	0.3197	0.4571
Venezuela	0.0000	0.0221	0.5338	0.0826	0.8137	0.0000
Italy	0.0555	0.0062	0.0310	0.0639	0.5895	0.4857
Poland	0.0171	0.0013	0.0149	0.0000	0.5921	0.5143
Spain	0.0405	0.0033	0.0135	0.0492	0.6622	0.4571
Thailand	0.0334	0.0064	0.0332	0.4907	0.1336	0.3429
South Africa	0.0228	0.0081	0.1446	0.2251	0.2217	0.3429
Turkey	0.0227	0.0003	0.0270	0.2150	0.5134	0.4000
India	0.1417	0.0056	0.0808	0.4683	0.2747	0.1429
Brazil	0.1236	0.0316	0.1247	0.2814	0.5378	0.0571
Russia	0.0897	0.0083	0.0651	0.1494	0.5492	0.2286
Nigeria	0.0022	0.0000	0.1708	0.1100	0.4861	0.0857
Argentina	0.0226	0.0023	0.0440	0.2089	0.4829	0.1429

ⁱ <http://www.searchautoparts.com/aftermarket-business/international-news/mexico-still-thriving-market-automotive-aftermarket>

ⁱⁱ <http://www.businessweek.com/articles/2014-08-28/koreas-carmakers-flee-to-mexico>

ⁱⁱⁱ <http://www.acea.be/news/article/eu-south-korea-fta>

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